






HACKING THE RIGOL MSO5000 - Dr Mefisto's Fully Automatic License Activator

This post exists because of the main rigol MSO5000 Post and specifically because of the python scripting method reverse engineered by Dr Mefisto but also largely improved upon by “asp” by increasing efficiency and solving the Assertion Error issue and allowing for MSO7000 and MSO8000 To be unlocked as well. This Tutorial will only focus on MSO5000, However this can be used as a guide for MSO7000 and MSO8000 (However, Appropriate .GEL files need to be used and appropriate Firmware Versions need to be used.

<https://www.eevblog.com/forum/testgear/hacking-the-rigol-mso5000-series-oscilloscopes/2671/>

 DrMefistoO Contributor Posts: 12 Country:  	 Re: Hacking the Rigol MSO5000 series oscilloscopes « Reply #2671 on: January 10, 2024, 11:41:13 am »
	So, this is it! I was able to reverse-engineer and understand how the license keys check works. And I'm glad to present this Fully automatic license activator . Use it carefully. Trying to switch off your device during activation may brick it.
	Usage: python rigol_kg.py 192.168.1.1
	 rigol_kg.py (10.55 kB - downloaded 481 times.)
	« Last Edit: January 10, 2024, 11:43:33 am by DrMefistoO »
	The following users thanked this post: thm_w, MegaVolt, mwbl100, std, NRS63, andyn

Also because SMAS laid out their path to activation in a very easy to understand way.

<https://www.eevblog.com/forum/testgear/hacking-the-rigol-mso5000-series-oscilloscopes/2840/>

and thanks to Seppletronics for working out the edited version of the file.

And HUGE thanks to asp for solving the Assertion Error which caused the revision of this document to include the new changes

Simply put the Python Script Method Works. There's nothing to worry about.

SO LET'S GET STUCK INTO IT

- A WORD ON BRICKING YOUR SCOPE

1. You're probably not going to
2. IF YOU LOSE POWER during the FRAM copy process YES.. YOU'LL BRICK YOUR SCOPE
3. IF YOUR LOSE ETHERNET CONNECTION during the FRAM copy process... YES, YOU'LL BRICK YOUR SCOPE

Because the data stream cannot be interrupted until it gets to 100% (this only applies to the .. maybe 2mins that the FRAM is actually being written to)

The script includes prompts when this is relevant.

If this method doesn't work for you, you can always revert back to the Patch Method if you wish.

STEP 1. Get Everything Together.

DOWNLOAD THE FOLLOWING

Rufus

<https://rufus.ie/en/>

Python

<https://www.python.org/downloads/>

THEN. GO TO MY MEGA CLOUD SERVER

<https://mega.nz/folder/A8cEqQRI#5FSoMrCurJi71T7VkRPgYQ>

Here you will find a few things that you'll need

1. Scope Firmware Version 1.3.2.2
2. Scope Firmware Version 1.3.3.0
3. Rigol_MSO_LicensingUtility_2.09b.py
4. Obviously you have downloaded this PDF file

Download all of those

OPTIONAL

- Downgrading to 1.3.2.2 Video (this video shows you how to get into the Pre Boot Menu)

IMPORTANT NOTE : READ CAREFULLY.

*****DO NOT SKIP THIS STEP*****

THE SCRIPT CAN ACTIVATE MSO5000, MSO7000, MSO8000 and Also overcomes the Assertion Error that was previously encountered.

If you encounter the Assertion Error Contact me and we'll fix it, But it's highly unlikely that you will have this problem. ENJOY THE SCRIPT

We have Improved the script and made it run faster as well as automated more of the tasks So you don't have to do them.

NOW....

STEP 2.

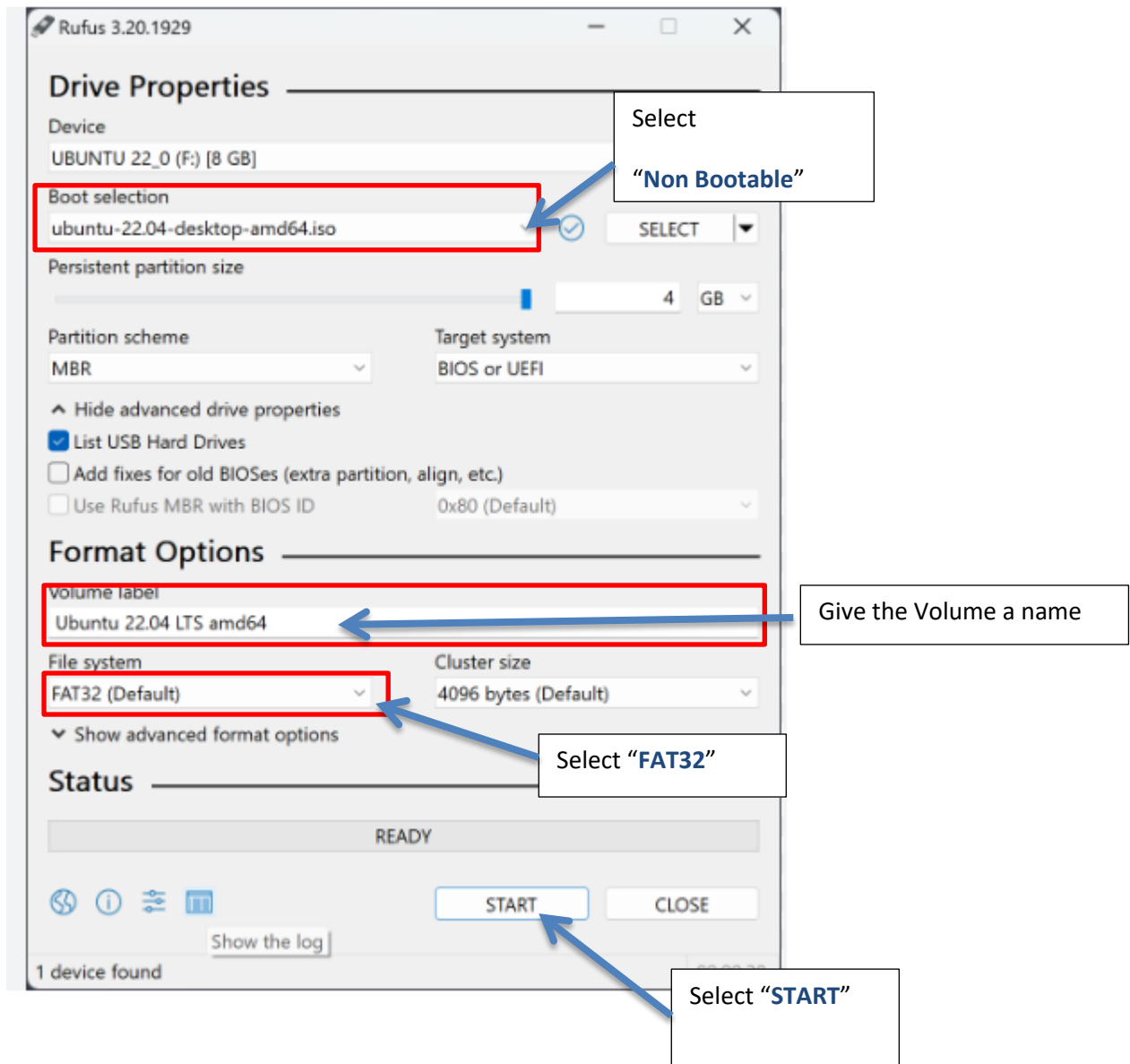
GET A U.S.B. STICK

It must be a maximum of 16GB and Formatted to FAT32 File System. (Min. Size of 2GB)

STEP 3.

FORMATTING THE U.S.B. STICK

- You can use Windows Formatting Tool
- You can also use a more secure method by downloading RUFUS in the supplied link.
- Install and run Rufus and this window will show up



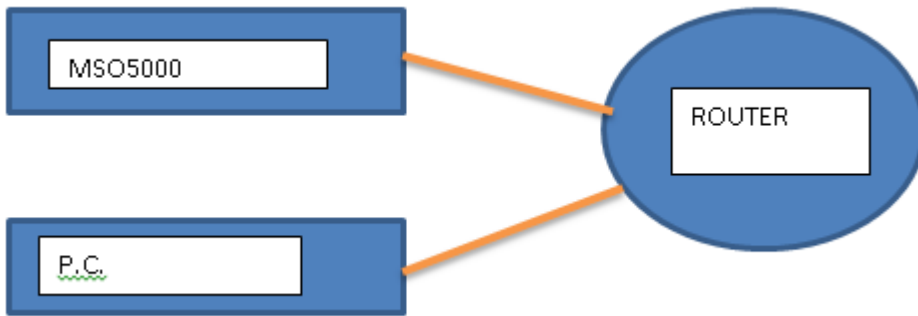
STEP 4. SETTING UP THE NETWORK.

There needs to be 3 basic components to your network

- Your P.C.
- Your Router
- Your Rigol MSO5000

DO NOT GET CREATIVE, OTHERS HAVE AND IT HAS FAILED!

The MSO5000 should be connected to your router via Ethernet Cable and your P.C. should be connected to your router via Ethernet Cable. Like this

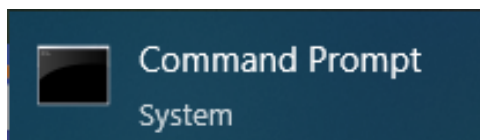


STEP 5.

CHECKING NETWORK COMMUNICATION.

Let's now test if the PC and MSO5000 Can actually speak to each other.

- Open cmd.exe



- Or PowerShell



- Enter the following Command
Ipconfig
- Press Enter

```
Administrator: Command Prompt

Microsoft Windows [Version 10.0.19045.4291]
(c) Microsoft Corporation. All rights reserved.

C:\Users\M[REDACTED]>ipconfig

Windows IP Configuration

Ethernet adapter Ethernet:

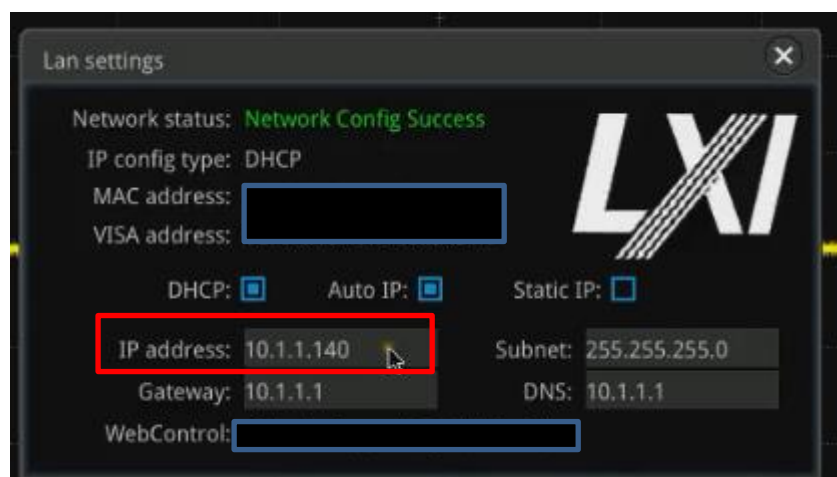
    Connection-specific DNS Suffix  . : 
    Link-local IPv6 Address . . . . . : fe80::c0ee:72bc:1285:3514%6
    IPv4 Address. . . . . : 10.1.1.119
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 10.1.1.1

C:\Users\M[REDACTED]>
```

In this scenario

- My Router (Default Gateway IP Address) is 10.1.1.1
- MY PC's (IPv4 Address) is 10.1.1.119

Now go to your MSO5000 into UTILITY / IO / LAN



- Make sure DHCP is selected
- Make sure AUTO IP is selected
- Take note of the IP Address of the scope (10.1.1.140) in this case
- Ensure the Default Gateway is the same as in command prompt
- Ensure the Subnet Mask is the same as in command prompt as well.

Now to test the communication to your router, type in :

- Enter the following Command
ping 10.1.1.1 -t
- Press Enter

The response should be similar to this

```
Pinging 10.1.1.1 with 32 bytes of data:  
Reply from 10.1.1.1: bytes=32 time<1ms TTL=64  
Reply from 10.1.1.1: bytes=32 time<1ms TTL=64  
Reply from 10.1.1.1: bytes=32 time<1ms TTL=64  
Reply from 10.1.1.1: bytes=32 time<1ms TTL=64
```

The way to stop the ping is to press CTRL+C

This means...

Your computer sent and ICMP (Communication) Request to the router

To find the I.P. Address 10.1.1.1

The router found it and had an ACK (Reply) from 10.1.1.1

32bytes of data were used to execute this task

The time taken for the round trip was less than 1ms

And the TTL (Time to Live) is 64 Hops, (if it took longer a TIMEOUT would have occurred)

Now repeat the same test for your scopes I.P. Address

- Enter the following Command
ping 10.1.1.140 -t
- Press Enter

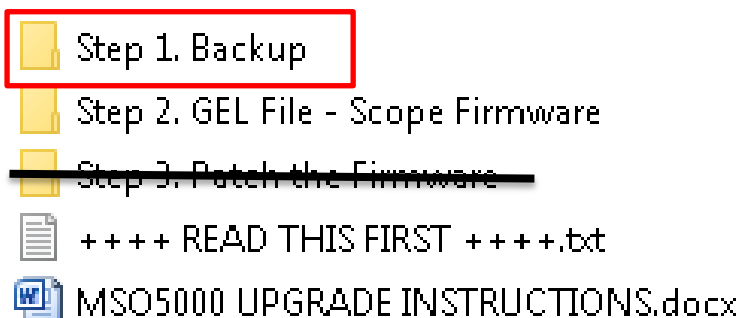
If you get a successful ping test, ... Proceed, if **not**, troubleshoot the network.

STEP 6.

BACKING UP YOUR SCOPE ****IMPORTANT**** .

Now it's important to know which file to copy first. TO DO THIS...

- Go to the Firmware download files and find the zip file labelled "UPGRADING TO 350MHz "
- **USE THE VERSION THAT CORRESPONDS TO YOUR SCOPES CURRENT FIRMWARE VERSION**
- After you extract the zip file you will see the following folders
WE WILL NOT BE USING "STEP 3. Patch the Firmware" ... Ignore it.



- Go to STEP 1 – BACKUP

1a. Backup Script

1b. NAND Script

++++ READ THIS FIRST +++.txt

Open 1a Backup Script

BACKUP DUMP

++++ READ THIS FIRST +++.txt

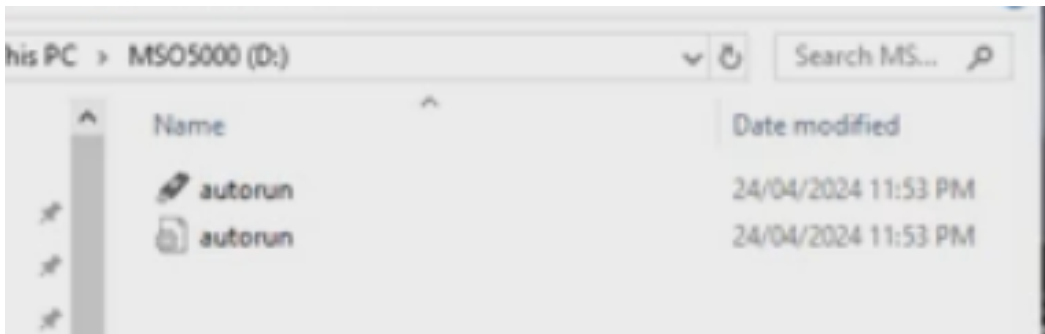
DS5000Update.GEL

readme.txt

STEP 7.

COPY THE BACKUP SCRIPT GEL FILE TO U.S.B.

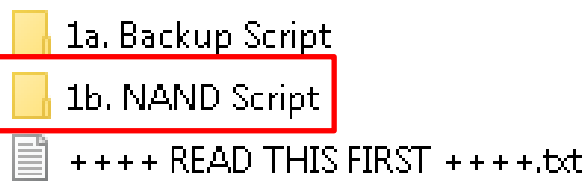
- Copy ONLY this file to your USB Stick, that will currently look like this (if you used Rufus.)
- Those RUFUS files can stay there, But copy the .GEL File into this ROOT directory



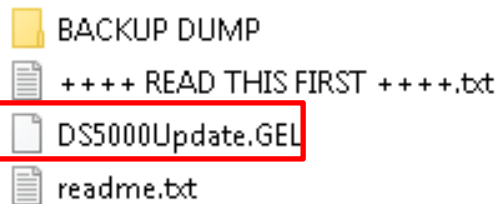
- Now SAFELY EJECT the U.S.B. Stick from your P.C.
- Insert it into the U.S.B Port of your Oscilloscope
- Wait for the U.S.B. Stick to detect
- Then go to UTILITY / SYSTEM / HELP / LOCAL UPGRADE
- Press OK
- Wait for the backup to finish
- Then Remove the U.S.B Stick from the MSO5000 and Insert it into your P.C. again.
- Delete only the GEL File
- Copy all other NEW Files into the BACKUP DUMP folder
- Now go back to this location

STEP 8.

COPY THE NAND SCRIPT GEL FILE TO U.S.B.



Open 1b NAND Script



Same as before.. copy this file to the U.S.B. Stick

Run the Local Upgrade

Wait for it to finish

Delete only the GEL file

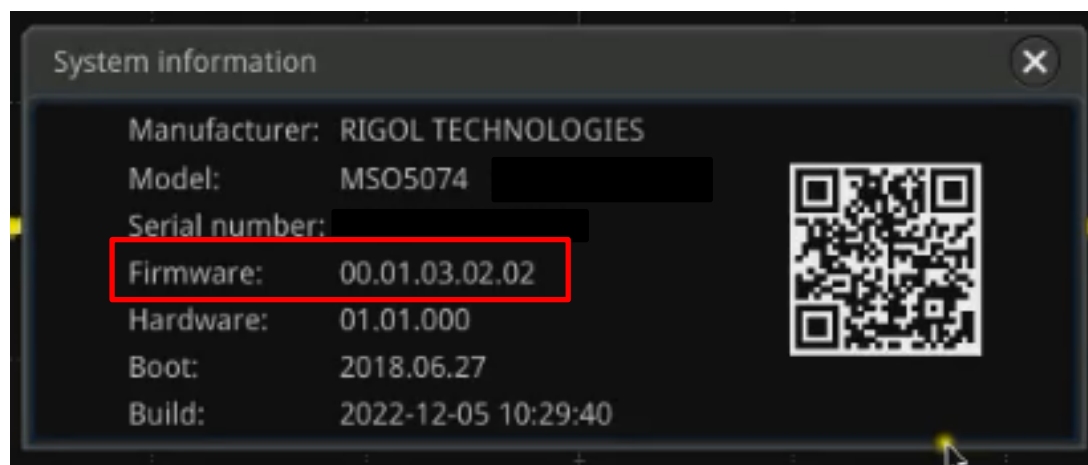
Then Copy all NEW files to the BACKUP DUMP folder

Your backup is now completed

STEP 9.

CHECK THE FIRMWARE VERSION

Check the Firmware Version of your scope by Going to UTILITY / SYSTEM / HELP / ABOUT



- You are free to activate and license from any version, so..
- If you just purchased a new oscilloscope (Proceed to STEP 10)
- If your new scope had Bundled options installed, You DO NOT need to uninstall them
- IF YOUR SCOPE HAS BEEN UPGRADED WITH OPTIONS THROUGH THE PATCH VERSION.
You Do need to uninstall those options before proceeding.
- Downgrading your scope version can also cause you to lose those options.
(If you do this you won't need to uninstall them later)

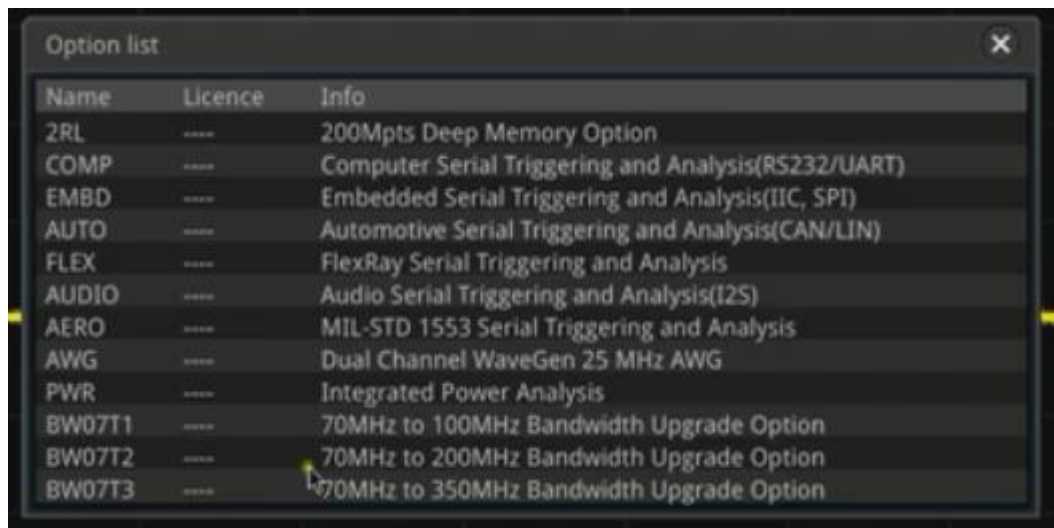
STEP 10.

CHECKING THE INSTALLED SOFTWARE OPTIONS/BUNDLES .

To Check what software options you currently have , go to

UTILITY / SYSTEM / HELP / OPTIONS LIST

IF IT LOOKS LIKE THIS



Name	Licence	Info
2RL	----	200Mpts Deep Memory Option
COMP	----	Computer Serial Triggering and Analysis(RS232/UART)
EMBD	----	Embedded Serial Triggering and Analysis(IIC, SPI)
AUTO	----	Automotive Serial Triggering and Analysis(CAN/LIN)
FLEX	----	FlexRay Serial Triggering and Analysis
AUDIO	----	Audio Serial Triggering and Analysis(I2S)
AERO	----	MIL-STD 1553 Serial Triggering and Analysis
AWG	----	Dual Channel WaveGen 25 MHz AWG
PWR	----	Integrated Power Analysis
BW07T1	----	70MHz to 100MHz Bandwidth Upgrade Option
BW07T2	----	70MHz to 200MHz Bandwidth Upgrade Option
BW07T3	----	70MHz to 350MHz Bandwidth Upgrade Option

It Means... you have NO OPTIONS INSTALLED

If it says FOREVER under Licence then you do have those options installed.

If there is a time next to the option, those options will run out eventually, but you do not need to uninstall those options at this time.

If the options were installed via the patching method you need to either uninstall them via the script

Or downgrade your scope or upgrade your scope to another version as patching does not survive changes in firmware version.

you can use the script to uninstall options (I'll show you later how to do this IN STEP 16)

STEP 11.

DOWNGRADING TO VERSION 1.3.2.2 (Optional)

If you want to downgrade your firmware version to lose the patched options or for any other reason Read this section.

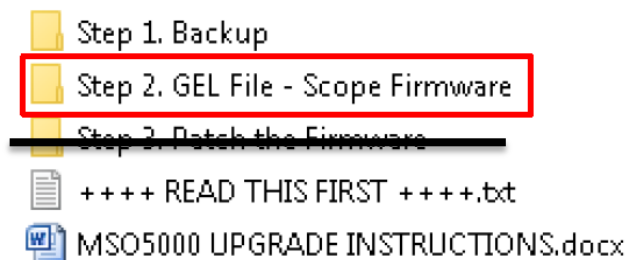
IF YOU DON'T NEED TO DOWNGRADE YOU CAN SKIP TO STEP 12

TO DOWNGRADE...

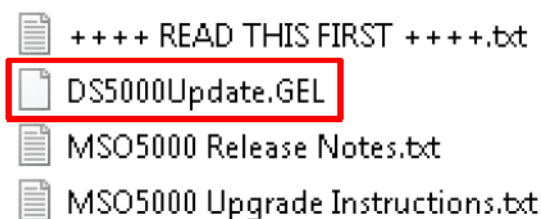
1. You need to copy a .GEL File to your U.S.B. Stick
2. The file you need is the Firmware Version **YOU WANT TO END UP ON** (Not the current one).

Now That you have your U.S.B. and it has the the correct GEL file on it,

- Go To This Location.



- Open Step 2 – GEL FILE – SCOPE FIRMWARE
- (Ensure the folder is the Firmware version YOU WANT TO END UP ON)



- Copy ONLY the DS5000Update.GEL file to your USB Stick (Delete all other files other than the Rufus Auto RunFiles).

YOU ARE NOW READY TO FLASH YOUR SCOPE WITH THE FIRMWARE...

1. Turn the scope OFF
2. Insert the U.S.B. Stick into the scope's U.S.B. Port
3. Before you turn the scope on you need to know how to enter the PRE BOOT Menu.
(You press the Power button, then REPEATEDLY press the SINGLE button) until a menu appears that says FIRMWARE UPGRADE and RESTORE DEFAULTS. If you get the progress bar, You didn't do it fast enough so switch the scope OFF and try again or watch the video on how to do it .
4. NOW.. TURN THE SCOPE ON and enter the PRE BOOT menu
5. Assuming you did that successfully, Select RESTORE DEFAULTS (this is just for good measure)
6. Now do that again and **select FIRMWARE UPGRADE.**
(it's actually a downgrade but it will say UPGRADE)
It will say "Upgrading Please Waitting" that means it started.
(Note : that was not a typo on my part, the scope actually spells it incorrectly)

If it doesn't start ALL THE LIGHTS ON THE SCOPE WILL BE FLASHING

(This means check your U.S.B Stick and Check that the file is not corrupted and Check that it is UNZIPPED) it must be a valid .GEL File for the scope to read it.

If you fail at this step, do not worry, it doesn't hurt your scope

When it is finished it will say SUCCESS and I think , 100%

Wait a few seconds

7. Turn the scope OFF
8. Remove the U.S.B Stick
9. TURN THE SCOPE ON AGAIN and boot up
10. Then go into the menu again and check the firmware version and confirm that it's correct.
11. Also check that you have lost all the installed Options.

IF SO, YOU HAVE SUCCESSFULLY DOWNGRADED THE FIRMWARE VERSION

(Remember this if you ever have to return the scope to Rigol for Servicing)

You can upgrade and downgrade anytime to any version if you want and then re apply the script and fully licence your scope, HOWEVER

After this script is applied

- You will have all options installed and a licenced scope.
- But if you downgrade you WILL NOT Lose your options, Nor if you upgrade.
- So.. if you need to return the scope without software options installed, You will need to uninstall them via the script (This will be explained later in STEP 16)

STEP 12.

INSTALLING PYTHON CORRECTLY.

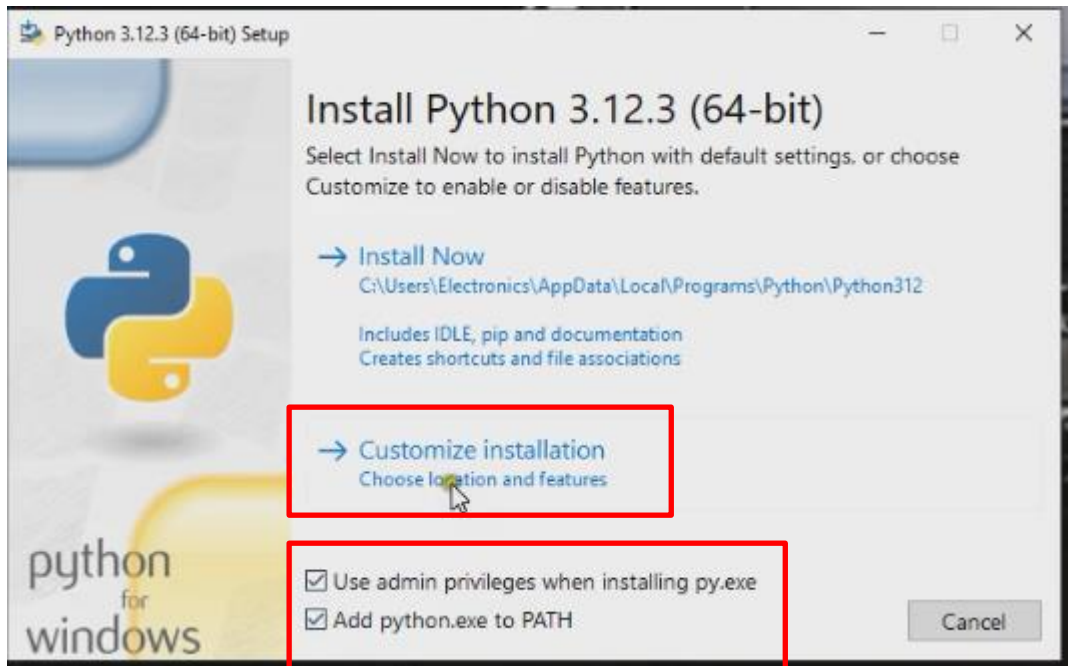
NOW IT'S TIME TO INSTALL PYTHON

- Your network is setup
- Your scope is on the desired version, and has no software options in it.
- We now need python in order to run the python script

You should have already used the link to download python

THIS IS HOW YOU INSTALL IT..... **DO NOT JUMP AHEAD!!!**

- Run the installer



VERY IMPORTANT –

- SELECT “Use admin privileges when installing py.exe”
- SELECT “add python.exe to PATH”
- SELECT “Customize Installation”

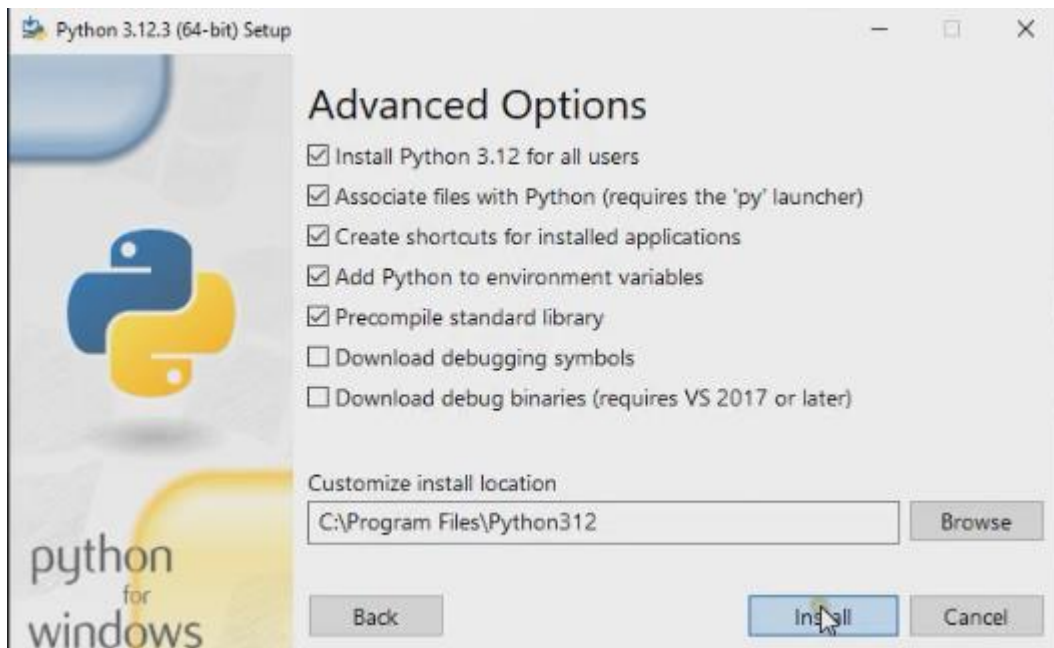
THIS STEP IS VERY IMPORTANT SO THAT YOU AVOID PROBLEMS LATER ON.

The next screen should look like this

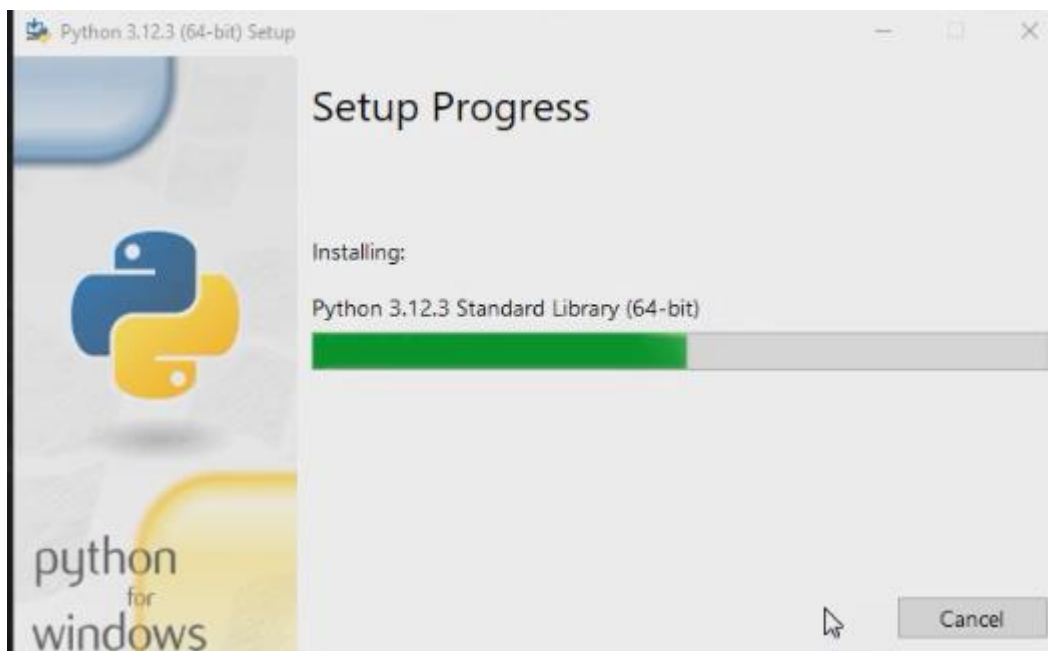


Then click NEXT

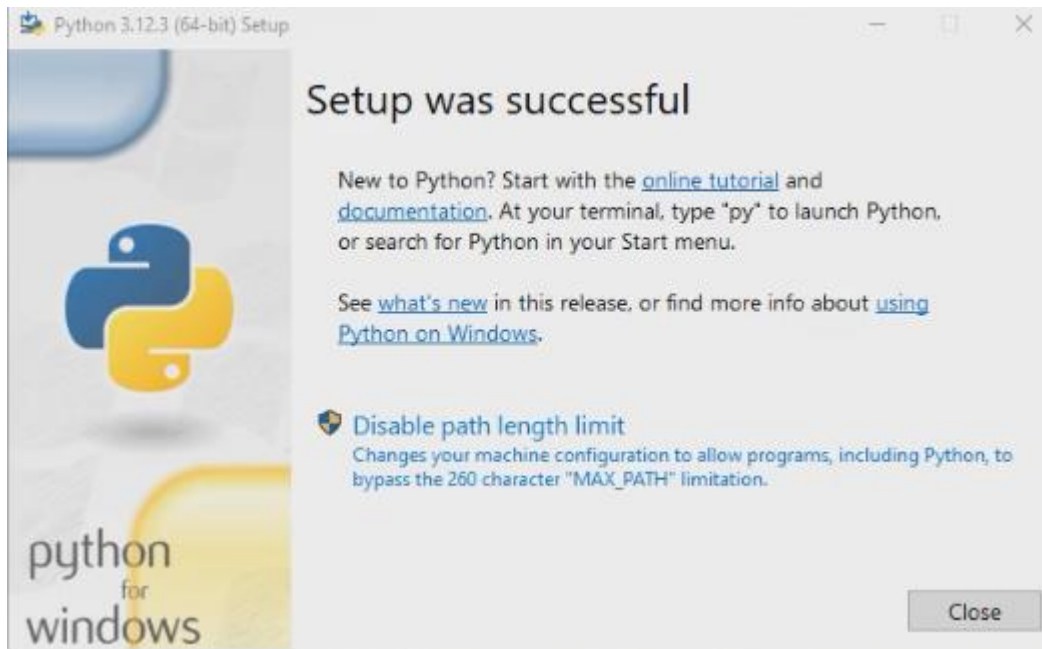
Then the ADVANCED OPTIONS should look like this



Then click INSTALL



Then this will happen



DISABLE “path length limit” , Just Click On It !

PYTHON IS NOW INSTALLED – RESTART YOUR COMPUTER.

STEP 13.

INSTALLING THE PYTHON MODULES

this is a very easy , yet very important step.

What are Modules ? : Modules in python are like subprograms that add to the functionality of python, in order for the script to work we need to install them.

You can do this in 1 of 2 ways.

METHOD 1 : Type :

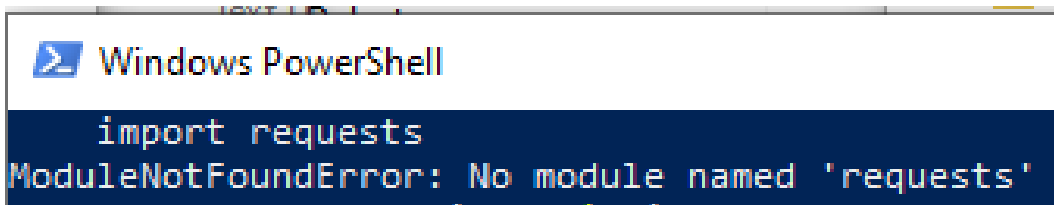
Python Rigol_MSO_LicensingUtility_2.09b.py -i 10.1.1.140

```
Command Prompt
Microsoft Windows [Version 10.0.19045.4355]
(c) Microsoft Corporation. All rights reserved.
C:\Users\Electronics>python rigol_kg2.py -i 10.1.1.140
```

We are attempting to bring up the INFORMATION menu in the scope. If we don't have the correct Modules installed it will give us an error called

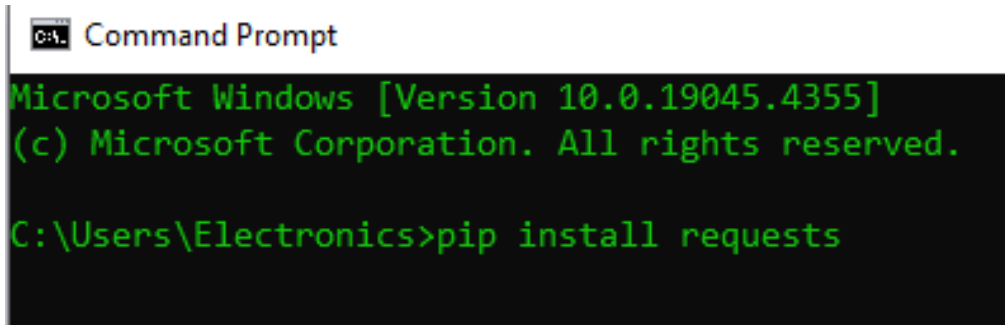
ModuleNotFoundError

When this happens there will be a module name at the end in parenthesis Example



```
> Windows PowerShell
import requests
ModuleNotFoundError: No module named 'requests'
```

You now want to install the module “requests” that produced the error by typing this in...



```
C:\> Command Prompt
Microsoft Windows [Version 10.0.19045.4355]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Electronics>pip install requests
```

That’s it !! and now for every error that you get you just substitute the name of the module in brackets for the one that needs to be installed.

FYI : PIP = Preferred Installation Package (it’s the module installer for python)

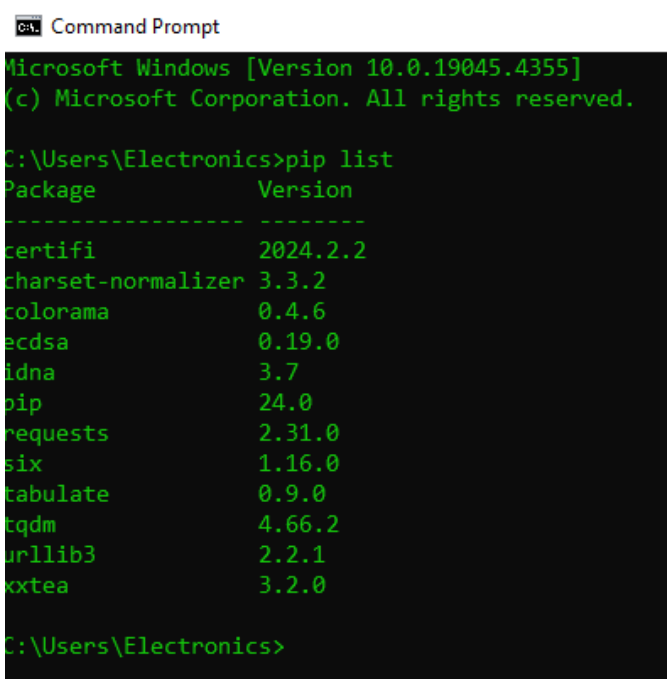
METHOD 2 – Just install them all , Here is the complete list of all modules...

But before that, You can LOOKUP what modules are installed by typing

Pip list

And something similar to this will appear.

This is the list of all modules that will make the script work



```
C:\> Command Prompt
Microsoft Windows [Version 10.0.19045.4355]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Electronics>pip list
Package            Version
-----
certifi            2024.2.2
charset-normalizer 3.3.2
colorama           0.4.6
ecdsa              0.19.0
idna               3.7
pip               24.0
requests          2.31.0
six               1.16.0
tabulate          0.9.0
tqdm              4.66.2
urllib3           2.2.1
xtea              3.2.0

C:\Users\Electronics>
```

STEP 14.

COPY THE PYTHON SCRIPT TO THE CORRECT LOCATION.

If you don't do this correctly, nothing will work as python will not find the script to execute.

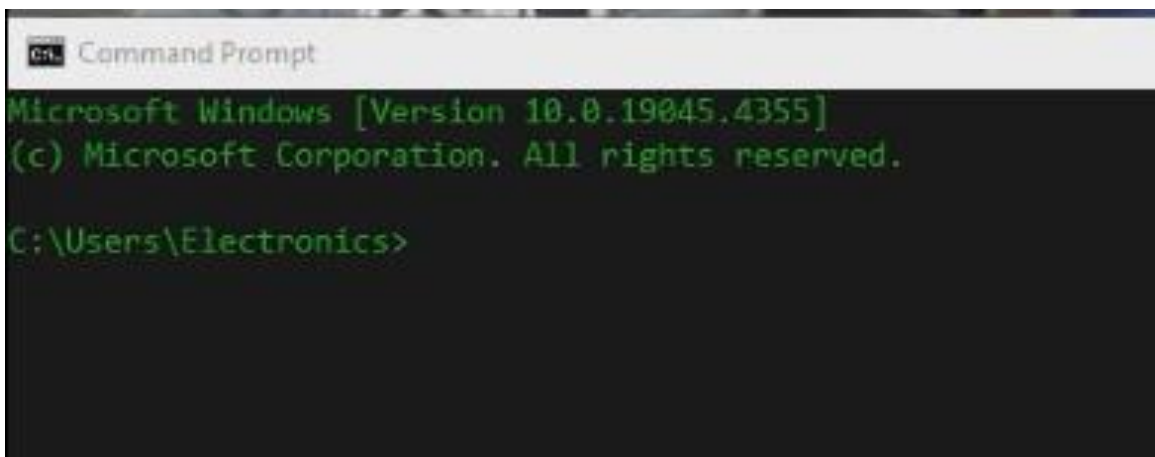
In this step, Python uses the script provided and it uses the I.P. Address of the scope to communicate with the scope and apply the changes from the script to the FRAM.

If it doesn't work, YOU HAVE NOT DAMAGED OR BRICKED YOUR SCOPE – Don't worry.

You just need to troubleshoot either the python installation or your computer or where you put the script.

Let's now put the script in the correct directory.

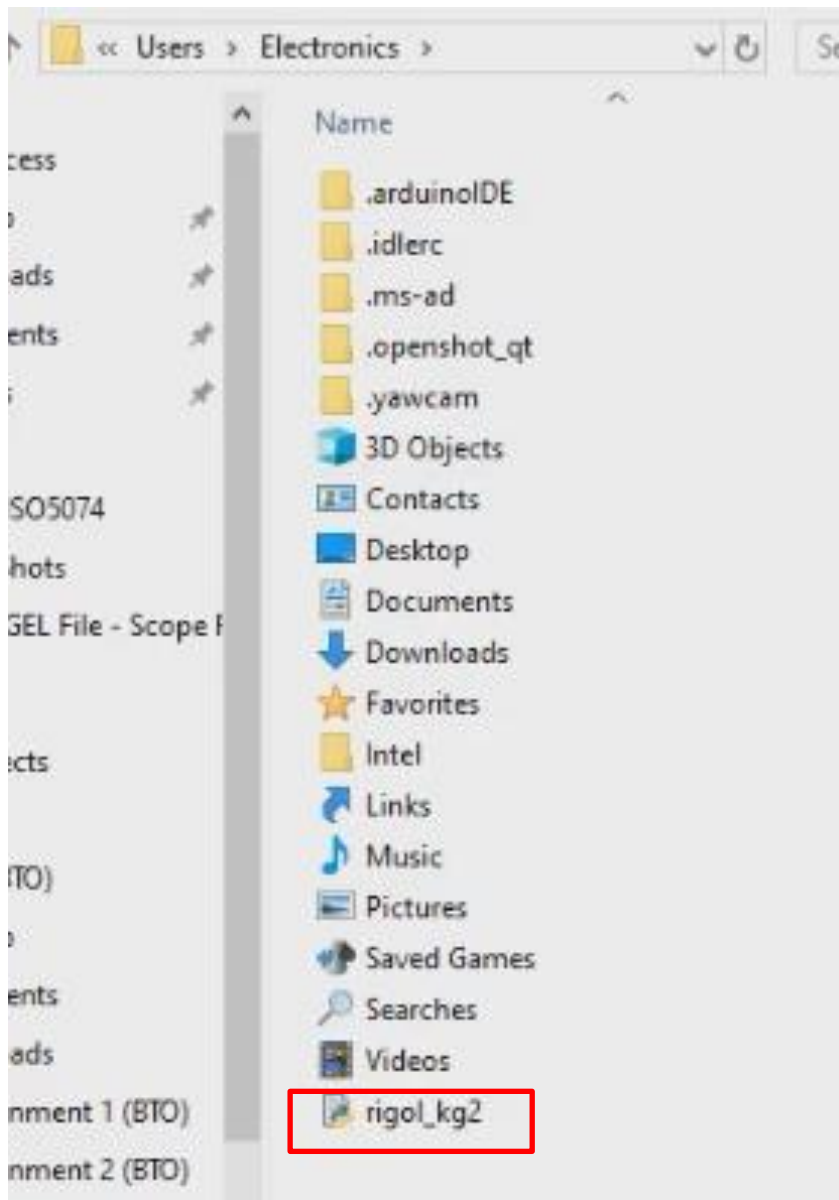
1. Open Command Prompt or Powershell (Whichever you prefer), Powershell has been known for having more success. Whichever you start with, Keep using that one.
2. When open Command prompt I get this..



```
Microsoft Windows [Version 10.0.19045.4355]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Electronics>
```

3. This means that the default file location for command prompt is C:\Users\Electronics
This is called "The Current WORKING DIRECTORY"
- You want to go and open this file location
 - Now go and get the python script that you downloaded earlier called...
Rigol_MSO_LicensingUtility_2.09b.py
 - Now go and paste this python script into that directory location, like this..



(Note : the picture is older and does not contain the correct filename as above)

Now if you type in **dir** into the command shell you will see this and the script

```
cmd Command Prompt
Microsoft Windows [Version 10.0.19045.4355]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Electronics>dir
Volume in drive C has no label.
Volume Serial Number is 60BA-4674

Directory of C:\Users\Electronics

27/04/2024  04:44 AM    <DIR>          .
27/04/2024  04:44 AM    <DIR>          ..
10/07/2023  12:28 AM    <DIR>          .arduinoIDE
24/04/2024  01:42 AM    <DIR>          .idlerc
07/07/2023  07:12 PM    <DIR>          .ms-ad
27/04/2024  04:15 AM    <DIR>          .openshot_qt
27/04/2024  04:52 AM    <DIR>          .yawcam
04/07/2023  07:56 PM    <DIR>          3D Objects
04/07/2023  07:56 PM    <DIR>          Contacts
27/04/2024  04:29 AM    <DIR>          Desktop
27/04/2024  04:25 AM    <DIR>          Documents
25/04/2024  02:38 AM    <DIR>          Downloads
17/02/2024  04:21 AM    <DIR>          Favorites
04/07/2023  06:59 PM    <DIR>          Intel
04/07/2023  07:56 PM    <DIR>          Links
04/07/2023  07:56 PM    <DIR>          Music
28/12/2023  09:58 PM    <DIR>          Pictures
24/04/2024  01:01 AM    <DIR>          12,299 rigol_kg2.py
04/07/2023  07:56 PM    <DIR>          Saved Games
04/07/2023  07:56 PM    <DIR>          Searches
27/04/2024  04:15 AM    <DIR>          Videos
               1 File(s)          12,299 bytes
               20 Dir(s) 193,435,152,384 bytes free

C:\Users\Electronics>
```

STEP 15.

GET MSO5000 SCOPE INFORMATION.

We are now going to use the python script to interrogate the scope and get information out of it.

THE AVAILABLE PYTHON OPTIONS IN THIS SCRIPT THAT YOU NEED TO KNOW ARE...

```
options:
-h, --help          show this help message and exit
-i, --info          Print options status, model and serial then exit
-r, --regen         Regenerate private key
-u, --uninstall     Uninstall all options
```

FIRST LET'S DISCUSS HELP (-h) and INFORMATION (-i)

1. None of these options can harm your scope in any way. Even if you lose power or network.

2. THE FORMAT GOES AS FOLLOWS

- First you type

python

If you are using Linux, you need to type

\$ python

(This has the effect of telling the command shell to call the python program.)

Do that now, And Press ENTER (This cannot hurt your scope in any way)

All we are doing at this stage is making sure command shell and python are talking to each other and that we can get basic scope information.

If you get this

```
'python' is not recognized as an internal or external command,  
operable program or batch file.
```

It means the python installation process did not go correctly and the PATH has not been justified correctly. I would suggest uninstall python and reinstall it , instead of trying to troubleshoot.

If you used Powershell it looks like this

```
python : The term 'python' is not recognized as the name of a cmdlet, function, script file, or operable program.  
Check the spelling of the name, or if a path was included, verify that the path is correct and try again.  
At line:1 char:1  
+ python  
+ ~~~~~  
+ CategoryInfo          : ObjectNotFound: (python:String) [], CommandNotFoundException  
+ FullyQualifiedErrorId : CommandNotFoundException
```

If you get this... YOU DID IT CORRECTLY. (This is the Python interpreter output)

```
Python 3.12.3 (tags/v3.12.3:f6650f9, Apr 9 2024, 14:05:25) [MSC v.1938 64 bit (AMD64)] on win32  
Type "help", "copyright", "credits" or "license" for more information.  
>>> _
```

Or in powershell

```
PS C:\Users\> python  
Python 3.12.3 (tags/v3.12.3:f6650f9, Apr 9 2024, 14:05:25) [MSC v.1938 64 bit (AMD64)] on win32  
Type "help", "copyright", "credits" or "license" for more information.  
>>>
```

YOUR SHELL HAS NOW CONNECTED TO THE PYTHON INTERPRETER.....THAT'S GOOD.

NOW GET OUT OF THAT BY TYPING.. **Exit()**

and press ENTER

You don't want to be in the interpreter, YOU WANT TO BE IN THE SHELL.

Now we know that

python

Means, Get the shell to CALL the python program into use, Let's add the script name, which will Tell the shell to call the python interpreter into use and use that script and read it and execute it. We do this by typing

python Rigol_MSO_LicensingUtility_2.09b.py

NOW WE ADD THE SWITCH THAT WE WANT TO USE (A Switch is a way of telling a program what subroutines to perform) in our case we want INFORMATION so that's -i

python Rigol_MSO_LicensingUtility_2.09b.py -i

Remember: python[SPACE]script[SPACE]switch[SPACE]I.P. Address

This tells python program to use that script file to obtain INFORMATION, But.. Information from where ?

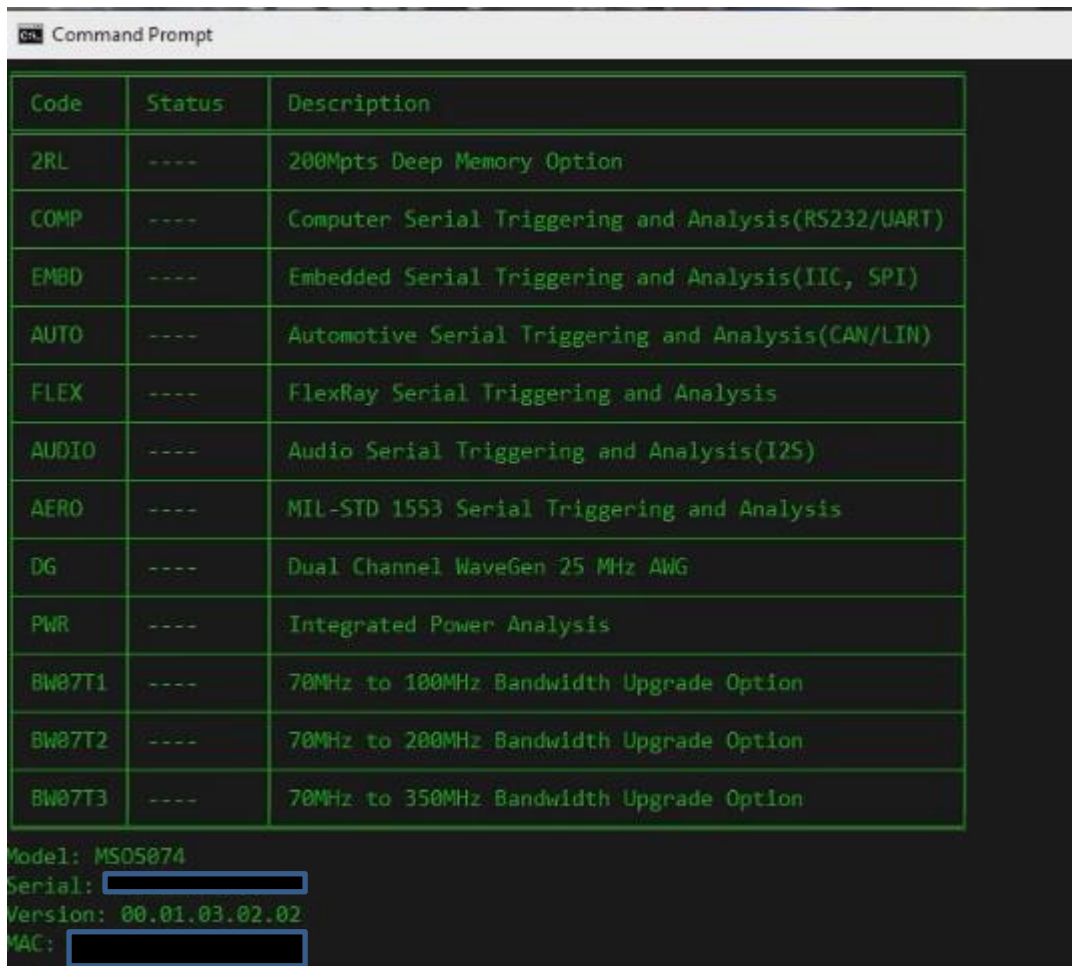
Answer : From your scopes I.P. Address, in my case it's 10.1.1.140 so the full command is

python Rigol_MSO_LicensingUtility_2.09b.py -i 10.1.1.140

NOW PRESS ENTER (You can't hurt your scope in any way doing this)

After you do the above you'll see this,

THIS MEANS YOUR SCOPE SUCCESSFULLY COMMUNICATED WITH THE SCRIPT AND PYTHON.



OPTIONAL : To Access the HELP Menu and all available options and Credits... Type ...

python Rigol_MSO_LicensingUtility_2.09b.py -h 10.1.1.140

Press Enter

STEP 16.

UNINSTALLING SOFTWARE OPTIONS :

To Uninstall any unwanted software options or bundles simply type in the following command.
Use the (-u) switch.

python Rigol_MSO_LicensingUtility_2.09b.py -u 10.1.1.140

- There is no need to Restart the scope, This will happen Automatically
- After the restart the options will be gone

STEP 17.

REGENERATE THE PRIVATE KEY. And LICENSING THE SCOPE.

BE CAREFUL FROM HERE

- Make sure your Ethernet cable cannot fall out
- Make sure your router, PC or Scope does not lose power FOR ANY REASON!!

The next step will READ the FRAM, if you lose power or network connection
Your scope can be bricked (But It's unlikely if you are careful)

IF YOU GET AN ASSERTION ERROR YOUR SCOPE IS NOT BRICKED...DON'T WORRY

From here the command is the same EXCEPT WE JUST CHANGE THE SWITCH from -i to -r
So type in

python Rigol_MSO_LicensingUtility_2.09b.py -r 10.1.1.140

Press ENTER

2 THINGS WILL HAPPEN

1. THIS SCREEN



2. A File called **PRIV.PEM** will be seen in the same location where your

Rigol_MSO_LicensingUtility_2.09b.py script is.

This file is a generated Private key that the script uses to licence your scope, don't move it just yet.

THEN. Another progress bar will appear

THIS IS THE CRITICAL WRITING STAGE

(This is where your scope, IF YOU LOSE POWER OR NETWORK will be bricked)

AT THIS STAGE IT IS POSSIBLE TO GET ONLY 1 BAR AND AN ASSERTION ERROR

If that happens, Don't worry.... Your scope is fine. Contact me to solve the problem

If the error didn't happen and the second line "**Applying now CFram**" Started... Keep reading on..

```
/rigol/tools/fram is OK!  
Reading CFram...  
100% | 8192/8192  
Reading CFram done.  
Applying new CFram...  
22% | 1768
```

HOWEVER..... IF THE PROGRESS BAR PAUSES or seems to freeze **DO NOT RESTART YOUR SCOPE.**

1. Do not panic, it's just paused
2. You probably accidentally clicked the screen.....
3. **JUST RIGHT CLICK SOMEWHERE ON THE BLACK PART AND IT'LL CONTINUE**, don't worry about it.

THIS SECOND PROGRESS BAR WILL TAKE A FEW MINUTES (that's normal)

Then you'll see stuff like this

```
Reading CFram...  
100% | 8192/8192 [00:14:00:00, 584.95it/s]  
Reading CFram done.  
Applying new CFram...  
100% | 8192/8192 [02:42:00:00, 50.54it/s]  
New CFram applied.  
Key data backup created.  
New Key data applied.  
Activating: 2RL [MSO5000-2RL@62DF7F2CB3D4400E9902B5ECB8FBA12FFD2548026A368BC2C0D2962C604C2FD709995CB5F085C63E1228C8080D5949076F1AEFFC7C0B29E980A6B6654A17F9DA]... unavailable.  
Activating: 4CH [MSO5000-4CH@1200E1D211B3F002EC0EFE198AD85F63F7C78AC07601E51E83416C4D212111423F8392516318274878030100E0F6885BA7D3C2362CEC503C5D0868E82C7C4C08]... not activated.  
Activating: 5RL [MSO5000-5RL@A5D7B8760AB68BF9410288348D0CCF3422E8E4E1AA1CAB2C89191A6112FC1B229ECC9B3C4A274B284300893DC2357008A1D8E6AE347772C300C9C933652070D2]... unavailable.  
Activating: AERO [MSO5000-AERO@99FDFB173746108F0727868FDC2B87A5EE6CC8B78437C5A6A7C8AA0895589E275882AF805C521C88737C86EE28816178A2C003D187AAEFF98135888FE087CD]... not activated.  
Activating: ARINC [MSO5000-ARINC@6F47E805CD685E5449C89F2AFABD3CD0385E3D3B196F6A9AF9C42094933085A54574BF88B79466F6ACAE67899070A25E1AE8392300C35E67B36754B24447BA8]... not activated.  
Activating: AUDIO [MSO5000-AUDIO@2AB19D7426DC8490F1CF600580FB24A55028938D7FE9CA68067A871F5409C656B8B8407734FD00F6257890ED47D6340F52C817E42D361C76EFD17B194897F]... not activated.  
Activating: AUTO [MSO5000-AUTO@07566AA6F010587F51A8ED3453E3858E987357B9D992A91304B315C3A6846F671F8582E9C4A2D0E891EF4E984BF12888861AD3447982EC2EC796AC39F8D7819]... not activated.
```

It is now attempting to License your scope. The script will go directly from -r (Regen Mode) to -a (Activation Mode) without you needing to issue the instructions. And it will also reboot the scope When necessary.

PAY ATTENTION TO THE SCRIPTS WARNINGS AS YOU PROGRESS..

ACTUALLY, WHAT'S IT'S DOING IS THIS...

1. It's searching for INSTALLED Software Bundles
2. It's searching for AVAILABLE Software Bundles
3. It's then applying the available one's to your scope
4. It's normal for some to say NOT ACTIVATED (Because they won't relate to your scope)
5. After it's finished you'll get the information window again

After an Automatic Reboot YOUR SCOPE WILL BE LICENSED AND ACTIVATED "FOREVER"

STEP 18.

RUNNING THE ACTIVATION ON IT'S OWN. - OPTIONAL

If the above steps worked for you, you don't need to do this step, but.. still read through it.

To do this you must already have the Priv.pem file in the current working directory.

The switch for activation is -a

Now for the final step.

- You **DO NOT** need to regenerate the private key
- You **DO NOT** need to do any backups at this stage
- Take the USB Stick out of your scope
- Your script and Priv.Pem file are ready to go

Just type this in and press enter

python Rigol_MSO_LicensingUtility_2.09b.py -a 10.1.1.140

BEFORE PRESSING ENTER , Make sure you won't lose power or network,

This is a critical part of the process, Your scope CAN be bricked now if you lose power or network.

PRESS ENTER when ready

If you accidentally performed this step or did it twice... IT DOESN'T MATTER, don't worry.

The same thing will happen as above

1. 2 PROGRESS BARS WILL APPEAR
2. THEN THE HEX CODES WILL APPEAR AND ATTEMPT TO LICENSE YOUR SCOPE
3. THE SCOPE WILL RESTART AUTOMATICALLY
4. LASTLY THE INFORMATION TABLE WILL SHOW UP


```
Command Prompt
Activating: BW07T1 [MS05000-BW07T1@2E19EE7E7739F655F141A6CFA219FCC8066A48FFA6C9386E508E01EA9D644CB454A4DFCF5BEC38645585EF58DFF1288593568B668E45E2862C96F2EBC696CC]... activated.
Activating: BW07T2 [MS05000-BW07T2@07794BFA2C737EE94510A78699F544A537755A2C330AF60E544596789256A6F88E8E04CB34EC3FA48608C6A46396F41E160CB8E26C67002A609E2A31C2]... unavailable.
Activating: BW07T3 [MS05000-BW07T3@2EC76435F839B1F5D6AC0557AA386EB21565C69832E8A3F81A94C52080811B4C6650F7C6FFF41962A2D1463AB4BE8CDEC2C7A06C9080436A10E66FA787CCA]... unavailable.
Activating: BW07T5 [MS05000-BW07T5@2E9CADFDDC2CAE003856C4DC691230868677C44F87B11DAA5CB6490E219771D67EB63A1CB6C4FF50AC4D81D7E5D01DA509A84F8364F9D9C0E8F00963248125CD]... unavailable.
Activating: BW1T2 [MS05000-BW1T2@71906FBCA3BF705988B6953BAAD17E309D37E8B084933DA92F4B60EA88288E650DF90AA01829D155C5F0C21F4A79CC6227FC6F9388DC826C95488D568F123D]... unavailable.
Activating: BW1T3 [MS05000-BW1T3@5484DAB190F874050191F43CF601C61CA007A58307267088469520FC226D1F7190C2283F1D92C8E0F579688DC85372578D084D1E79367F65830E08FC1A2564]... unavailable.
Activating: BW1T5 [MS05000-BW1T5@8C8A7F6978BD4C7FB209E6FFB8E374D876AC525801D9D3D3D179840C40E5E891951EC4DC902966AE68C6E2DDDE5459A741065607650E549D1FE3A5497A75AAD]... unavailable.
Activating: BW2T3 [MS05000-BW2T3@0EEFE782EE83D085F49F066810A7CGAB14AA380088E677299CFCC941DD3778712CFB247A00EEFC82AC5E8F1518FD411EE38A4089257DC9813503379CA4914214]... unavailable.
Activating: BW2T5 [MS05000-BW2T5@6584D8568448E103A2C129E17176803696716AA8E32CF56E850CA0E13D5E363003FA3EBEFD04ED2A204EF71C23E86CCE6663E50AEF454198000891B74434ED1]... unavailable.
Activating: BW3T5 [MS05000-BW3T5@9430F554F30C728069717EA24236FA93E62848230C5EB7E5ACE03810ADC60886723784C5F465786A10CF79FB48D67E3D2A132C2D055D1C1915A0654A74AA45B]... unavailable.
Activating: COMP [MS05000-COMP@3AE0485AC0F6589CF227800D808FAC8888B175E3B565FEFEECF7C4A76C69EC575D11EC7FF8A080DE874760FD27E191E9A965A00091C8CE8852E8E811E18B6E]... activated.
Activating: CTR [MS05000-CTR@549F07FDC03D0833C05E6837408D1F26427CC7467F08E9F9CB3E840194EDBA62C6369F7CC2A246137C6473D6B98370C15ACC9E8F2CC40F41F9003DE38D950]... activated.
Activating: DG [MS05000-DG@140EB155A05E4A27C0C9A3D28F243858BAACF950928AB849ECE791F44E6F4E198E57E98ACE0A50054330730CE0D098717011F58F4328F0AF42DEC178D2D8F53]... unavailable.
Activating: DVM [MS05000-DVM@61355223E398C144A8B2323653A1209689AAC65D00011F1FE92D2D9C05A6CC8B09482CF29C5924E480CAC281AAB2C908D4EDCF14D3E6D884AF8FEFF5029DF632]... activated.
Activating: EDK [MS05000-EDK@4D93D3C90858929AAE93C463F1D70FA01EF154583A8881157AE2291049519E1E546E88AEC71D43182BE400DE0F12B206DC0818356604AFB53D0CF2713A8D52]... activated.
Activating: EMBD [MS05000-EMBD@4E4F27F9B8AA382E248AA4734154A08F21511388119FA4E68835D08ADFEB981D32D03999068FC1EF844CE9C3994C8FAAEFF4697A9013F3076B01F4711FEBAA2]... activated.
Activating: FLEX [MS05000-FLEX@617E3B07F32CE7CF2B81A4608812626CFE2EA142B10755069566C868A3CE96838C11C2B57C2320302ACC318C1DE232FC6B0830E7B1489EF7A4D07A5E70820E7]... activated.
Activating: JITTER [MS05000-JITTER@99A465E4C69ABA12F845F478055F3B892692AFAEE3226B061E7C84102652028B1491FC058FCF510884622A678567DF1B2A5500960650A0F0874A5D9088D4367]... not activated.
Activating: MASK [MS05000-MASK@6A646A5D96AC6F0B968030AC9309EE5473D0681ECC51145178F973DC0E00CE1D41F7CD74E4050AE800A8C12A406F81E680010EAB86967E681ED61A87E9E8418]... activated.
Activating: MSO [MS05000-MSO@216A86E251961758CD2113CF4EDF386012E5A3733C8203083466C3CC43A7A0F6E75D0DF4D80FF61A30230AAE18D15F280314ED618D719560A087107D6021F0]... activated.
Activating: PWR [MS05000-PWR@651D36F555A64D7D46A9BA1CD490C10EAC7C7FFC7E46793D4C4B2288935660029298D1C52384911557587B47A6A4B2A043A8E270E21C5E7A8F171E3A8BD47B9]... activated.
Activating: SENSOR [MS05000-SENSOR@41A44E7EB351E86591D95D412D26B85622E42E92B7B4]... activated.
```

Code	Status	Description
2RL	Forever	200Mpts Deep Memory Option
COMP	Forever	Computer Serial Triggering and Analysis(RS232/UART)
EMBD	Forever	Embedded Serial Triggering and Analysis(IIC, SPI)
AUTO	Forever	Automotive Serial Triggering and Analysis(CAN/LIN)
FLEX	Forever	FlexRay Serial Triggering and Analysis
AUDIO	Forever	Audio Serial Triggering and Analysis(I2S)
AERO	Forever	MIL-STD 1553 Serial Triggering and Analysis
DG	Forever	Dual Channel WaveGen 25 MHz AWG
PWR	Forever	Integrated Power Analysis
BW07T3	Forever	70MHz to 350MHz Bandwidth Upgrade Option

C:\Users\Electronics>

And when that's done it will say FOREVER

Activating: SENSOR [MS05000-SENSOR@41A44E7EB351E86591D95D412D26B85622E42E92B7B4]

Code	Status	Description
2RL	Forever	200Mpts Deep Memory Option
COMP	Forever	Computer Serial Triggering and Analysis(RS232/UART)
EMBD	Forever	Embedded Serial Triggering and Analysis(IIC, SPI)
AUTO	Forever	Automotive Serial Triggering and Analysis(CAN/LIN)
FLEX	Forever	FlexRay Serial Triggering and Analysis
AUDIO	Forever	Audio Serial Triggering and Analysis(I2S)
AERO	Forever	MIL-STD 1553 Serial Triggering and Analysis
DG	Forever	Dual Channel WaveGen 25 MHz AWG
PWR	Forever	Integrated Power Analysis
BW07T3	Forever	70MHz to 350MHz Bandwidth Upgrade Option

YOUR SCOPE IS NOW LICENSED.

And if you had an Assertion Error, it should now have disappeared. If not...Contact me!

STEP 19.

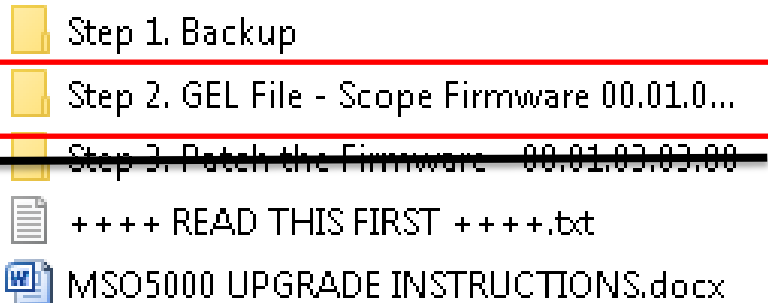
UPGRADING TO FIRMWARE VERSION 1.3.3.0 (LATEST).

You now need to upgrade to the latest version (The hard part is over), CONGRATULATIONS.

Skip this step if you are already on the latest firmware.

Now, get your U.S.B Stick and remove the 1.3.2.2 GEL File

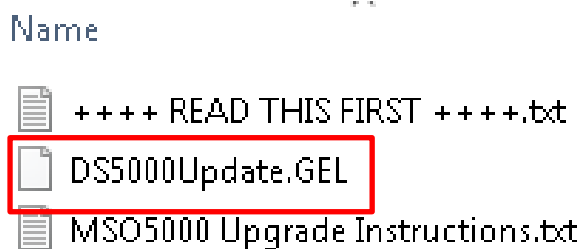
And go the folder with the 1.3.3.0 zip file, when you extract it, it will look like this



GO STRAIGHT TO STEP 2 GEL FILE – SCOPE FIRMWARE 1.3.3.0

No need to do a backup or Patching

Grab this file...



- Copy it to your U.S.B. Stick
- Turn your scope OFF
- Put the U.S.B Stick in the scope
- Go into the PRE BOOT Menu (or .. you can do this from the operating system with LOCAL UPGRADE)
- Select Upgrade Firmware
- When completed, RESTART THE SCOPE

STEP 20.

CONFIRM VERSION 1.3.3.0 (LATEST).

- You now go into ABOUT and check that you have the latest version
- Then go into OPTION LIST and you'll see that all your licensed options SURVIVED THE UPGRADE.
- (and if you want to downgrade again if you're curious, THEY WILL ALSO SURVIVE THE DOWNGRADE, I downgraded to Version 1.1.4.4 just to see what would happen, it's all still there.
- **From now on, if a new version comes out, Just go to the Rigol site, download the .GEL file and install it, NO NEED FOR PATCHING EVER AGAIN**

STEP 21.

DO YOUR BACKUPS.

- You now Need to do steps 6 , Step 7 and Step 8 Again
- This will create a backup of your entire scope
- KEEP THESE FILES SAFE

STEP 22.

CALIBRATIONS.

- You now need to do a SELF TEST
- There are 3 tests in this sequence
- Then you need to do a SELF CALIBRATION (Self Cal)

Once this is completed, RESTART YOUR SCOPES AND YOU'RE DONE

CONGRATULATIONS YOU ARE NOW FULLY LICENCED AND ALL OPTIONS UNLOCKED.

ENJOY YOUR SCOPE .